

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 03 APR 2006

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Applicant's or agent's file reference P14385PCDK	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/DK2004/000851	International filing date (day/month/year) 09.12.2004	Priority date (day/month/year) 10.12.2003	
International Patent Classification (IPC) or national classification and IPC INV. B24B7/06			
Applicant FLEX TRIM A/S			

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☒ sent to the applicant and to the International Bureau a total of 2 sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- ☒ Box No. I Basis of the report
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 03.10.2005	Date of completion of this report 31.03.2006
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Rechler, W Telephone No. +49 89 2399-2354 

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/DK2004/000851

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

3	filed with the demand
1, 2, 4-9	as published

Claims, Numbers

1-3	filed with the demand
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Drawings, Sheets

1/5-5/5	as published
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- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing *(specify)*:
 - ☐ any table(s) related to sequence listing *(specify)*:
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing *(specify)*:
 - ☐ any table(s) related to sequence listing *(specify)*:

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/DK2004/000851

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1 - 3
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1 - 3
Industrial applicability (IA)	Yes: Claims	1 - 3
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item V

1. Reference is made to the following documents:
D1: WO-A-00/62975
D2: US-A-1 666 347
2. The document D2 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses all features of claim 1, except the feature that each grinding head is provided with a grinding motor. This distinguishing feature permits each grinding element to be individually driven and controlled.

The problem to be solved by the present invention may therefore be regarded as individually controlling each grinding element in order to comply with specific needs, for example at edges or roundings and to avoid grinding marks on the work piece.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT), because the only distinguishing feature has already been employed for the same purpose in a similar grinding apparatus, see document D1, in particular figures 6 - 10 and the corresponding passages of the description. It would be obvious to the person skilled in the art, namely when the same result is to be achieved, to apply these features with corresponding effect to a grinding apparatus according to document D2, thereby arriving at a grinding apparatus according to claim 1.

3. Dependent claims 2 and 3 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, see documents D2 and D1 and the corresponding passages cited in the search report.

The additional features of claim 2 are immediately derivable from document D2.

In claim 3 a slight constructional change in the apparatus of claim 1 is suggested which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/DK2004/000851

advance. Consequently, the subject-matter of claim 3 also appears to lack an inventive step.

Re Item VII

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D2 and D1 is not mentioned in the description, nor are these documents identified therein.

This means that the apparatus will not ensure an efficient grinding/deburring of edges and roundings of an item, as e.g. a stationary grinding drum may only grind the surface and forward facing edges/roundings, and a bar with overlapping grinding area of the grinding brushes only ensures a grinding of large parts of the surface once.

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Object of the Invention

It is the purpose of the invention to indicate a grinding apparatus which is simple in structure, and which by means of a number of movable grinding elements may uniformly cross-grind an item or workpiece with edges, roundings and burrs, simultaneously with the consumption of sandpaper is minimal.

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This is achieved by means of a grinding apparatus as specified in the preamble of claim 1, and where the support arrangement includes an endless conveying means for the grinding heads, the conveyor means being moved in an annular course with at least one long side perpendicular to an underlying conveyor; by at least one moving motor for establishing an epicyclic movement of the grinding elements across the work piece during operation.

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Description of the Invention

In order to grind an item in one run through the grinding apparatus, it is designed with a number of grinding elements driven by the grinding motors and which constitute a number of grinding heads.

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These grinding heads are connected with a support arrangement that holds the grinding heads at a desired position in relation to the surface of the item.

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In a preferred embodiment of the invention, these grinding elements are circular grinding wheels connected to the grinding motors so that they are disposed in the horizontal plane and preferably in parallel with the surface of the workpiece to be ground.

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In order to grind the whole item in one run, the support arrangement includes a conveying means for the grinding heads, the conveying means being driven by the moving motors.

Claims

- 5 1. Grinding apparatus (1) for processing a workpiece (20), including a support arrangement (4) for a number of grinding heads (6) that each includes a grinding element (2) and a grinding motor (3) driving an associated grinding element (2), characterised in that the support arrangement (4) includes an endless conveying means (9) for the grinding heads (6), the conveyor means (9) being moved in an annular course with at least one long side perpendicular to an underlying conveyor, by at least one
- 10 moving motor (5) for establishing an epicyclic movement of the grinding elements (2) across the work piece (20) during operation.
2. Grinding apparatus (1) according to claim 1, characterised in that the conveyor means (9) is constituted by a number of drive chains or belts which are adapted for
- 15 engaging with a drive wheel (11) driven by the moving motors (5).
3. Grinding apparatus (1) according to claim 1, characterised in that it includes an apparatus frame (7) in which the support arrangement (4) is adjustable in height arranged by means of a number of displacing force providers (12).
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